UHF ANALOG WIRELESS INTERCOM SYSTEMS

WBS-670/680

WBS-670

WBS-680

Powerful Features and Performance

For Reliable Mobile Communications

Clear-Com®
AN HME COMPANY

Whether you are adding to a wired intercom system or creating a standalone wireless communications system, the WBS-670 and WBS-680 wireless intercoms are excellent choices. These systems extend the reach of your communications system in live performance, studio and mobile television production, industrial and aerospace applications, or wherever full-duplex wireless communications are required.

Frequency-Agile UHF Operation

The WBS-670 and WBS-680 operate in select frequency bands between 470-686MHz. Both wireless systems are supplied with 24 factory-selected, intermodulation-free frequencies. Select from factory presets or any suitable frequency in 25kHz increments. 720 Tx and 720 Rx frequencies can be selected, each from independent 18 MHz operational bands.

Adjustable Transmitter Power

The beltpacks can sense when operating in close proximity to the base station and intelligently reduce transmitter output by 10dB. This effectively eliminates overloading the base station receiver front end which is the primary cause of “nearfar” densing problems. WBS wireless system beltpacks operate in normal power mode for typical distances. A manual high power setting is available when operating the beltpacks more than 200ft (160m) from the base station.

Pre-Selected Compatible

Frequencies and Frequency Scan System setup is easy with the 24 internal pre-selected and intermodulation-free frequency groups. Aided by the “ClearScan” function, base stations and beltpacks can typically be coordinated and work together within minutes. Memory locations can be allocated so that particular sets of frequencies can be chosen, programmed and saved as a new preset.

Graphical User Interface

A clear, backlit LCD screen displays the status of the beltpacks and provides easy access to all the powerful features as well as configuration of the operational parameters. The LCD displays which beltpack is transmitting, operating frequencies, and group/channel status.

Superior Audio Quality and Range

The audio quality of the WBS-670 and WBS-680 wireless systems is on par with that of professional wired partyline and digital matrix intercoms. UHF frequencies are ideally suited for operating through obstacles. A variety of remote antenna options can help improve range in difficult, interference-prone production environments.

Seamless Connection to Wired Intercoms

WBS wireless systems can interface with a variety of two-wire partyline, four-wire digital matrix or other wireless intercom systems. In addition to interfacing with external intercom systems, the WBS systems provide connections for auxiliary balanced audio input and output. Wireless Talk-Around (WTA) and Stage Announce (SA) features are available on the WTR-680 beltpack.

Rechargeable Battery Option

The battery pack will operate the beltpack in full-duplex mode for 14 hours with a set of alkaline batteries. The optional rechargeable NiMH (nickel metal hydride) batteries will give over 11 hours of continual use. The charger is available in a four-bay configuration.

WBS-670 SINGLE-CHANNEL WIRELESS

The WBS-670 1RU, rack-mountable base station supports up to four full-duplex wireless beltpacks.

System Features:

- Full talk/listen headset at the base
- Rear panel connections allow system expansion
- LCD screen displays which beltpacks are transmitting the operating frequencies and group/channel status
- Input and output level adjustment controls for both the connected wired intercom and auxiliary audio connection
- 3-pin XLR loop-through connectors for one channel of wired partyline intercom at the rear
- WTA (Wireless-Talk-Around) button momentarily routes audio to only the wireless beltpacks monitoring the current channel, serving as isolation (ISO) channel
- Stage Announce (SA) button allows a (dry) relay signal
- RJ-45 connector for direct connection to a digital four-wire intercom port, and a pair of auxiliary connectors
- A pair of efficient, half-wave co-linear antennas is supplied with the system. A variety of external antennas may also be used

WTR-670 Beltpack Features:

- Extremely light, durable cast magnesium
- Durable, detachable antennas are secured to the beltpack via threaded post connectors
- Low-profile volume control
- Robust, distinguishable momentary latch talk button

WBS-680 TWO-CHANNEL WIRELESS

The WBS-680 1RU, rack-mountable base station supports up to four full-duplex wireless beltpacks.

System Features:

- Full talk/listen headset at the base
- Rear panel connections allow base station to connect to two separate channels of wired intercom (two-wire, four-wire, or both)
- Toggle switch enables the user to communicate with either intercom channel A or B (including any wired intercoms connected at the base station)
- LCD screen displays which beltpacks are transmitting the operating frequencies and group/channel status
- Input and output level adjustment controls for both the connected wired intercom and auxiliary audio connection
- 3-pin XLR loop-through connectors for one channel of wired partyline intercom at the rear
- WTA (Wireless-Talk-Around) button momentarily routes audio to only the wireless beltpacks monitoring the current channel, serving as isolation (ISO) channel
- Stage Announce (SA) button allows a (dry) relay signal, which can activate a loudspeaker, two-way radio, IFB, or any other relay activated device
- RJ-45 connector for direct connection to a digital four-wire intercom port, and a pair of auxiliary connectors
- A pair of efficient, half-wave co-linear antennas is supplied with system. A variety of external antennas may also be used

WTR-680 Beltpack Features:

- Extremely light, durable cast magnesium
- Durable, detachable antennas are secured to the beltpack via threaded post connectors
- Low-profile volume control
- Robust, distinguishable momentary latch talk button
- Stage Announce
- Wireless-Talk-Around (WTA)

WBS-670/680 UHF FREQUENCY BAND CHART					
NTSC TV CHANNEL	START FREQUENCY	END FREQUENCY	FREQUENCY BAND OPTIONS	PAL TV CHANNEL	
14	470	476	88	21	470-478
15	476	482		22	478-486
16	482	488		23	486-494
17	488	494		24	494-502
18	494	500		25	502-510
19	500	506		26	510-518
20	506	512		27	518-526
21	512	518		28	526-534
22	518	524	A	29	534-542
23	524	530		30	542-550
24	530	536		31	550-558
25	536	542	B	32	558-566
26	542	548		33	566-574
27	548	554		34	574-582
28	554	560	C	35	582-590
29	560	566		36	590-598
30	566	572		37	598-606
31	572	578		38	606-614
32	578	584		39	614-622
33	584	590		40	622-630
34	590	596	E	41	630-638
35	596	602		42	638-646
36	602	608		43	646-654
37	608	614	NOT USED IN USA	44	654-662
38	614	620		45	662-670
39	620	626		46	670-678
40	626	632		47	678-686
41	632	638	2	48	686-694
42	638	644		49	694-702
43	644	650		50	702-710
44	650	656	3	51	710-718
45	656	662		52	718-726
46	662	668		53	726-734
47	668	674	4	54	734-742
48	674	680		55	742-750
49	680	686		61	790-798
G9 is only available in Germany.	796	802	G	65	822-830
	802	808		66	830-838
	808	814		67	838-846
	844	850	9	68	846-854
	850	856		69	854-862
	856	862			

■ Transmit Bands ■ Receive Bands

Single Channel Wireless Intercom System (WBS-670) Frequency Band Options: A2, B4, C3, C6, G9

Two-Channel Wireless Intercom System (WBS-680) Frequency Band Options: A2, B4, C3, C6, E88

OVERVIEW		
	WBS-680/WBS-670 Base Station	**WTR-680/WTR-670 Beltpacks**
RF Frequency Range	518-608MHz, 614-686MHz in 18MHz TX and RX bands WBS-670: G9 band, 796-814MHz Tx, Germany only	518-608MHz, 614-686MHz in 18MHz TX and RX bands WTR-670: G9 band, 844-862MHz Tx, Germany only
Power Requirement	100-240VAC, 50-60Hz, IEC receptacle	6 Alkaline "AA" Cells (NiMH optional)
Typical Battery Life Alkaline	N/A	14 Hours (Continuous duty with talk light on)
Typical Battery Life - Nickel Metal Hydride (1500 mAh)	N/A	11 Hours (Continuous duty with talk light on)
Current Draw	N/A	140mA (Push-to-Talk, Talk On)
Temperature Range	-4°F to 140°F (20°C to 55°C)	-4°F to 140°F (20°C to 55°C)
Dimensions	19.0" W x 1.72" H x 14.0" D (48.3cm x 4.4cm x 35.6cm)	3.75" W x 5.05" H x 1.65" D (9.5cm x 12.8cm x 4.2cm)
Weight	WBS-680: 7lbs. 2oz. (3.24kg) WBS-670: 6lbs. 15oz. (3.15kg)	16oz. (0.454kg) with batteries 15oz. (0.425kg) with batteries
Transmit Antenna	1/2 Wave (supplied), TNC Male Connector	1/4 Wave (supplied), Screw type
Receiver Antenna	1/2 Wave (supplied), TNC Male Connector	1/4 Wave (supplied), Screw type
FCC ID	B5DM514	B5DM515
Frequency Response	300Hz - 8,000Hz	300Hz - 8,000Hz
Four-Wire Input	Level Adjustable (2Vrms typical)	N/A
Four-Wire Output	Level Adjustable (2Vrms typical)	N/A
Clear-Com® Partyline Levels	Input/Output Level Adjustable (1Vrms typical), Line Impedance 200W	N/A
RTS® Partyline Levels	Input/Output Level Adjustable (0.775Vrms typical), Line Impedance 200W	N/A
Telex® Partyline Levels	Input/Output Level Adjustable (1 Vrms typical), Line Impedance 300W	N/A
Auxiliary Input	Adjustable (2Vrms typical)	N/A
Auliliary Output	Adjustable (2Vrms typical into 600W) (at rated deviation)	N/A
Stage Announce Output (WBS-680 only)	Internally Adjustable (1Vrms typical at rated deviation into 100KW)	N/A
Stage Announce Relay (WBS-680 only)	Dry contact, rated at 1Amp, 24V Max. / N/A	N/A

TRANSMITTER		
	WBS-680/WBS-670 Base Station	**WTR-680/WTR-670 Beltpacks**
Type	Synthesized, 720 channels	Synthesized, 720 channels
Transmit Power	WBS-680: 100mW max. (High), 10mW (normal) WBS-670: 50mW max. (High), 5mW (normal)	WTR-680/WTR-670: 50mW max. (auto-power reduction when close to base)
RF Frequency Stability	0.005%	0.005%
Modulation	FM, 40KHz Deviation	FM, 40KHz Deviation
Modulation Limiter	Peak-Responding Compressor	Peak-Responding Compressor
Modulation Frequency Range	300Hz -8,000Hz +-2dB	300Hz -8,000Hz +-2dB
Microphone Audio Input	30W - 3,500W	30W - 3,500W
Microphone Input Sensitivity	9mV	9mV
Radiated Harmonics & Spurious	Exceeds FCC specifications	Exceeds FCC specifications
FCC Acceptance	Type accepted under FCC Part 74	Type accepted under FCC Part 74

RECEIVER		
	WBS-680/WBS-670 Base Station	**WTR-680/WTR-670 Beltpacks**
Type	Dual Conversion Superheterodyne, Synthesized, FM, 720 channels	Dual Conversion Superheterodyne, Synthesized, FM, 720 channels
RF Sensitivity	<0.7mV for 12dB SINAD	<0.7mV for 12dB SINAD
Signal-to-Noise Ratio	95dB	95dB
IF Selectivity	3dB at 230KHz	3dB at 230KHz
Image Rejection	70dB or better	70dB or better
Squelch Quieting	95dB	95dB
RF Frequency Stability	0.005%	0.005%
Distortion	<1% at full deviation	<1% at full deviation
Local Headset Output	40mW output into 600W (1% distortion)	40mW output into 600W (1% distortion)
FCC Acceptance	Notification under FCC Part 15	Notification under FCC Part 15

WTR4C

The WTR4C is a battery charger that can charge up to four batteries simultaneously. It provides built-in maintenance capability to maximize the battery cycle life for the WBS-670 and WBS-680 wireless intercom systems. WTR4C helps to optimize the battery and maintains the battery's peak capacity while it is charging. There is no restriction to how long the battery can remain in the charger. Rapid charge capabilities fully charge batteries in less than two hours. Batteries are sold separately.

STATUS INDICATORS

- Charging LED - Solid light indicates battery pack is charging
- Ready LED - Solid light indicates battery is fully charged
- Rejected LED - Flashing light indicates faulty or dead battery
- Power LED - Solid light indicates there is power to the charging slot
- Conditioning Cycle LED - Flashing light indicates discharging process

BATTERY FEATURES

- Easy-to-read LED status indicator lights
- Battery is fully charged in less than two hours
- Maintains battery at peak capacity
- Optimizes battery life
- Battery can remain in charger indefinately

TECHNICAL SPECIFICATIONS

WTR4C BATTERY CHARGER	
Physical Characteristics	**WTR4C**
Product Dimensions	13" (33cm) W x 1.7" (4.5cm) H x 7" (17.8cm) D
Product Weight	4lbs (1.5kg) without battery adapters
Shipping Dimensions	11.5" (29.2cm) W x 10.5" (26.7cm) H x 18.5" (47cm) D
Shipping Weight	10lbs, 9oz (4.8kg) with battery adapters, power supply, & rechargeable battery packs
Material	ABS KJW fire retardant plastic, textured

FEATURES	
Conditioning Cycle	Provides built-in maintenance capability to maximize battery cycle life
Status Indicators	'Charging', 'Ready', 'Rejected' (dead battery), 'Conditioning Cycle' and 'Power LED' indicators make the WTR4C simple and easy to use
Intelligent Charging	• Optimizes the battery • Battery can remain in the charger indefinitely • Maintains battery at peak capacity
Rapid Charge Capability	Charges in less than 2 hours

USER ENVIRONMENT	
ESD	8KV continuous contact discharge; 15KV from air to all surfaces without contact
Humidity	95% relative humidity (non-condensing)
Drop	Unit functions normally after 4ft./1.2m drop to concrete
Storage Temperature	-40° to 122oF/-40° to 50°C
Operating Temperature	32° to 122°F/0o to 50°C
Power Supply	WTR4C: (Universal): 90V-230VAC, 50/60Hz Output: 15VDC, 5A or 24VDC, 4.5A
Safety Standards	Charger & power supply UL listed (UL 1950), CSA Certified (C 22.2 No. 223); Compliant to FCC part 15 Class A and CE Marking (Electromagnetic Compatibility) Directive 89/336/EEC and Low Voltage Directive 73/23/EEC; C15PR-22 Class B

PERFORMANCE CHARACTERISTICS	
Rapid Charge	Charges batteries to 90+% capacity in 2 hours or less
Complete Charge	Completes 100% capacity charge in 4 hours or less
Conditioning	Completely discharges a battery and automatically switches to charging mode
Maintenance Charge	Maintains the battery at optimum capacity indefinitely

USER INTERFACE	
Power LED	Indicates POWER to charging slot
Conditioning/Charging LED	Flashing indicates discharging process
Reject LED	Flashing indicates faulty battery
Conditioning/Charging LED	Solid indicates battery pack is being charged
Ready LED	Solid indicates battery charged

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About Clear-Com®

Clear-Com, an HME company, is a global provider in professional voice communications systems since 1968. We develop and market proven intercom technologies such as Analog & Digital Partyline, Digital Matrix, Wireless and Intercom-over-IP systems for critical communication applications in broadcast, performance venues, military, government and enterprise markets. Recognized for our legacy of intercom innovations, production teams around the world have come to depend on Clear-Com for clear, reliable and scalable communications solutions.

About HM Electronics, Inc. (HME)

HM Electronics, Inc. is a diverse group of companies providing solutions that enhance productivity and customer service in markets including restaurants, sports and professional audio. Founded in 1971, we sell, service and support products in 89 countries worldwide, via company-owned offices in the U.S., Canada, Europe, and China, and an extensive network of HME-authorized distributors, dealers and service agents. Every day quick service restaurants take over 24 million orders using HME systems. With the recent acquisition of Clear-Com, HME is the world's leading provider of professional intercom systems.

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